

1. (Currently Amended) A method for determining parameters of an equivalent circuit representing a transmission section (4) of an electrical network, where the transmission section (4) is representable as having at least two interfaces (5,6,7) with other sections (1,2,3) of the network.

~~characterised in that~~ wherein the method comprises the steps of

- a) determining, for each of the interfaces (5,6,7), a voltage phasor ($\bar{v}_1, \bar{v}_2, \bar{v}_3$) at the interface (5,6,7) and a phasor of a current ($\bar{i}_1, \bar{i}_2, \bar{i}_3$) flowing through the interface (5,6,7), the measurements at the different interfaces (5,6,7) being made essentially simultaneously, and
- b) computing, from said voltage ($\bar{v}_1, \bar{v}_2, \bar{v}_3$) and current ($\bar{i}_1, \bar{i}_2, \bar{i}_3$) phasors, values of impedances (\bar{Z}_T, \bar{Z}_N) constituting the equivalent circuit.

2. (Currently Amended) Method according to claim 1, wherein the transmission section (4) is a transmission corridor having exactly two interfaces (5,6,7) to other sections (1,2) of the network.

3. (Currently Amended) Method according to claim 2, wherein a first interface (5) connects the transmission corridor (4) to a network section (1) consisting predominantly of power generators, and a second interface (6) connects the transmission corridor (4) to a network section (2) consisting predominantly of power consumers.

4. (Currently Amended) Method according to claim 2, wherein the transmission network (4) is represented by one of a T-equivalent and a Π -equivalent circuit.

5. (Currently Amended) Method according to claim 3 or 4, comprising the further step of computing parameters ($\bar{E}_{th}, \bar{Z}_{th}$) of a Thévenin equivalent of a network constituted by the transmission section (4) and by the network section (1) consisting predominantly of power generators.

6. (Currently Amended) Method according to claim 1, wherein the transmission section (4) comprises three or more interfaces (5,6,7) to other sections of the network (1,2,3) and the equivalent circuit comprises line impedances ($\bar{Z}_{12T}, \bar{Z}_{23T}, \bar{Z}_{31T}$) interconnecting the interfaces and shunt impedances ($\bar{Z}_{1Sh}, \bar{Z}_{2Sh}, \bar{Z}_{3Sh}$) connecting the interfaces (5,6) to a common node.

7. (Currently Amended) Method according to ~~one of the preceding claims~~ claim 1, wherein at least one interface ~~(5;6;7)~~ comprises at least two physical power lines, and the voltage phasor (\vec{v}_1, \vec{v}_2) at the interface ~~(5;6;7)~~ is determined as a weighted sum of the voltages at the power lines.

8. (Currently Amended) Method according to claim 7, wherein a current phasor (\vec{i}_1, \vec{i}_2) representing a current through the interface ~~(5;6;7)~~ is computed from the voltage phasor (\vec{v}_1, \vec{v}_2) at the interface and a power flow $(\vec{p}_{cut1}, \vec{q}_{cut1}; \vec{p}_{cut2}, \vec{q}_{cut2})$ through the power lines constituting the interface.

9. (Currently Amended) Computer program for determining parameters of an equivalent circuit representing a transmission section of an electrical network which is loadable and executable on a data processing unit and which computer program, when being executed, performs the steps according to ~~one of the claims 1 to 8~~ claim 1.

10. (Currently Amended) Data processing system for determining parameters of an equivalent circuit representing a transmission section of an electrical network comprising means for carrying out the steps of the method according to ~~any one of the claims 1 to 8~~ claim 1.